

## Cédric Chevalier, Ph.D in Computer Science

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<b>Contact</b>	Professional	Personal
	Scalable Algorithms Dept (01416) Sandia National Labs P.O. Box 5800, MS-1320 Albuquerque, NM 87185-1320 Phone: (505) 845-2075 ccheval@sandia.gov <a href="http://www.sandia.gov/~ccheval">http://www.sandia.gov/~ccheval</a>	12200 Academy Rd NE Apt 612  Albuquerque, NM 87111 Cell: (505) 506-4368 cedric@droids-corp.org
<b>Education</b>	Ph.D. Computer Science Université de Bordeaux I Design and implementation of efficient tools for parallel partitioning and distribution of very large numerical problems Obtained with honors: <i>Mention Très Honorable</i>	2004–2007 Bordeaux, France
	Master Degree Computer Science Université de Bordeaux I Obtained with honors: <i>Mention Bien</i>	2004 Bordeaux, France
	Engineer in Computer Science École Nationale Supérieure d'Électronique, d'Informatique et de Radiocommunication de Bordeaux (ENSEIRB) Obtained with honors: <i>Mention Bien</i>	2001–2004 Bordeaux, France
	Preparatory courses for french engineering schools Lycée Gay-Lussac Intensive lessons in Mathematics and Physics	1999-2001 Limoges, France
	Postdoc Erik G. Boman Parallel combinatorial computing in the CSCAPES institute (DOE, Office of Science project), more specifically on parallel hypergraph partitioning and applications like load-balancing, matrix ordering, ... Work on Zoltan and Isorropia softwares and in the Trilinos project (( <a href="http://trilinos.sandia.gov">http://trilinos.sandia.gov</a> ))	since december 2007 Sandia National Labs
<b>Research Experience</b>	Ph.D. student Francois Pellegrini and Jean Roman Design and implementation of efficient tools for parallel partitioning and distribution of very large numerical problems. Work on Scotch software.	2004–2007 Université Bordeaux I
<b>Publications</b>	<b>Articles</b> [1] C. Chevalier and F. Pellegrini. PT-Scotch: A tool for efficient parallel graph ordering. <i>Parallel Computing</i> , 34(6–8):318–331, Jul. 2007. doi:10.1016/j.parco.2007.12.001.	

## Proceedings

- [2] E. Boman, U. Catalyurek, C. Chevalier, K. Devine, I. Safro, and M. Wolf. Advances in parallel partitioning, load balancing and matrix ordering for scientific computing. *Journal of Physics: Conference Series*, 180(012008), July 2009.
- [3] Karen D. Devine, Erik G. Boman, Lee Ann Riesen, Umit V. Catalyurek, and Cédric Chevalier. Getting started with zoltan: A short tutorial. In Uwe Naumann, Olaf Schenk, Horst D. Simon, and Sivan Toledo, editors, *Combinatorial Scientific Computing*, number 09061 in Dagstuhl Seminar Proceedings, Dagstuhl, Germany, February 2009. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik, Germany.
- [4] C. Chevalier and I. Safro. Comparison of coarsening schemes for the multilevel graph partitioning. In *LION 3 Conference*, Trento, Italy, January 2009. acceptance: 23%.
- [5] C. Chevalier and F. Pellegrini. PT-Scotch : Un outil pour la renumrotation paralle efficace de grands graphes dans un contexte multi-processeurs. In *Renpar 17 Proceedings*, October 2006.
- [6] C. Chevalier and F. Pellegrini. Improvement of the efficiency of genetic algorithms for scalable parallel graph partitioning in a multi-level framework. In *Proc. Europar, Dresden, LNCS 4128*, pages 243–252, September 2006.

## Workshop and Conferences

- [7] C. Chevalier and E. G. Boman. An accurate hypergraph model for mesh partitioning. In *SIAM Workshop on Combinatorial Scientific Computing (CSC09)*, Seaside, CA, October 2009. Poster.
- [8] C. Chevalier and E. G. Boman. Parallel unsymmetric nested dissection ordering for sparse direct solvers. In *SIAM Conference on Applied Linear Algebra (LA09)*, Seaside, CA, October 2009.
- [9] C. Chevalier, E. G. Boman, K. D. Devine, and U. V. Catalyurek. Zoltan Tutorial. In *Tenth Workshop on the DOE Advanced Computational Software (ACTS) Collection*, Berkeley, CA, August 2009.
- [10] C. Chevalier, E. G. Boman, K. D. Devine, U. V. Catalyurek, and I. Safro. Parallel partitioning, load balancing and matrix ordering for scientific computing. In *SciDAC 09*, San Diego, CA, June 2009. Poster.
- [11] C. Chevalier and E. G. Boman. Parallel sparse matrix ordering with Zoltan. In *SIAM Conference on Computational Science and Engineering (CSE09)*, Miami, FL, March 2009.
- [12] C. Chevalier and I. Safro. Weighted aggregation for multi-level graph partitioning. In Uwe Naumann, Olaf Schenk, Horst D. Simon, and Sivan Toledo, editors, *Combinatorial Scientific Computing*, number 09061 in Dagstuhl Seminar Proceedings, Dagstuhl, Germany, February 2009. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik, Germany.
- [13] C. Chevalier. Ordering and coloring in Isorropia. In *Trilinos User Group Meeting*, Albuquerque, NM, oct 2008.
- [14] C. Chevalier, E. G. Boman, and F. Pellegrini. Parallel sparse matrix ordering. In *SIAM Conference on Parallel Processing for Scientific Computing (PP08)*, March 2008. Poster.
- [15] C. Chevalier and F. Pellegrini. The PT-Scotch project. In *The SIAM Workshop on Combinatorial Scientific Computing (CSC07)*, Costa Mesa, CA, February 2007.
- [16] C. Chevalier and F. Pellegrini. PT-Scotch: A tool for efficient parallel graph ordering. In *Proc. PMAA'2006, Rennes, France*, October 2006. [http://www.labri.fr/~pelegrin/papers/scotch\\_parallel\\_ordering\\_pmaa.pdf](http://www.labri.fr/~pelegrin/papers/scotch_parallel_ordering_pmaa.pdf).

- [17] C. Chevalier. Towards parallel graph partitioning in Scotch. In *Workshop on "Mesh creation, domain decomposition and parallel computing in 3D geophysics"*, Pau, France, October 2005. Poster.

#### **Other communications**

- [18] C. Chevalier. Towards unsymmetric sparse matrix ordering for LU factorization in Zoltan. Solstice ANR meeting, January 2009. Toulouse, France.
- [19] C. Chevalier. Zoltan toolkit. Seminar, January 2009. CEA/DAM Île de France.
- [20] C. Chevalier. Parallel sparse matrix ordering. CSCAPES Seminar, February 2008. CSCAPES Institute.
- [21] C. Chevalier. Parallel sparse matrix ordering. ScAlApplix Seminar, November 2007. INRIA Bordeaux.
- [22] C. Chevalier. Parallel sparse matrix ordering. CSRI Seminar, February 2007. Sandia National Laboratories.
- [23] C. Chevalier. Genetic algorithms and graph partitioning. ScAlApplix Seminar, March 2005. INRIA Bordeaux.

#### **Scientific Software**

- [24] Isorropia: Trilinos package for partitioning, load-balancing and more. <http://trilinos.sandia.gov/packages/isorropia/>.
- [25] Scotch library. Software package and libraries for graph, mesh and hypergraph partitioning, static mapping, and parallel and sequential sparse matrix block ordering. <http://gforge.inria.fr/projects/scotch/>.
- [26] Zoltan toolkit. Parallel Partitioning, Load Balancing and Data-Management Services, <http://www.cs.sandia.gov/Zoltan/>.

**Computer Skills** Expert: C, C++ , MPI, POSIX threads, L<sup>A</sup>T<sub>E</sub>X, Linux, Unix  
Intermediate: perl, python, shell, Java, SQL  
Basic: Assembly

**Languages** French: native  
English: good level  
Spanish: read and written

**Miscellaneous** French Citizenship  
Actually works for Sandia National Labs with H1-B visa  
27 years  
Single